GEOTHERMICS

International Journal of Geothermal Research and its Applications

VOLUME CONTENTS AND AUTHOR INDEX

VOLUME 26 (1997)

PERGAMON

GEOTHERMICS

International Journal of Geothermal Research and its Applications

Editor

E. BARBIER—National Research Council—International Institute for Geothermal Research, Pisa, Italy

Associate Editor for the Americas

S. E. INGEBRITSEN—U.S. Geological Survey, Menlo Park, California, U.S.A.

Managing Editor

MARY H. DICKSON (Editorial Office in Pisa, see below)

Editorial Board

Terms expire December 1997

V. M. ARELLANO GOMEZ—Instituto de Investigaciones Eléctricas, Cuernavaca, Morelos, Mexico
C. CLAUSER—Geological Survey of Lower Saxony, Hannover, Germany
D. H. FREESTON—Geothermal Institute, University of Auckland, New Zealand
B. STEINGRIMSSON—National Energy Authority, Reykjavik, Iceland

Terms expire December 1998

H. ARMANNSSON—National Energy Authority, Reykjavik, Iceland
A. DE JESUS—PNOC Energy Development Corporation, Manila, Philippines
R. DIPIPPO—Dept. Mechanical Engineering, University of Massachusetts Dartmouth, North Dartmouth, Massachusetts, U.S.A.
F. GOFF—Los Alamos National Laboratory, Los Alamos, New Mexico, U.S.A.
A. JUPE—CSM Associates Limited, Penryn, Cornwall, U.K.
M. O'SULLIVAN—Department of Engineering Science, University of Auckland, New Zealand

Terms expire December 1999

P. R. L. BROWNE—Geothermal Institute, University of Auckland, Auckland, New Zealand
D. DEMING—School of Geology & Geophysics, University of Oklahoma, Norman, Oklahoma, U.S.A.
M. GRANT—GENZL, Auckland, New Zealand
M. HANANO—JMC Geothermal Engineering Co. Ltd, Morioka, Japan
M. P. HOCHSTEIN—Geothermal Institute, University of Auckland, Auckland, New Zealand
M. SASADA—Geological Survey of Japan, Tsukuba, Japan

Advisory Board

V. CERMAK—Geophysical Institute, Czech Academy of Sciences, Prague, Czech Republic
I. B. FRIDLEIFSSON—President, International Geothermal Association, Auckland, New Zealand
V. I. KONONOV—Laboratory of Geothermics, Institute of Geology, Academy of Sciences, Moscow, Russia
M. J. LIPPMANN—Lawrence Berkeley Laboratory, University of California, Berkeley, California, U.S.A.
H. MAEJIMA—Japan Geothermal Energy Association, Tokyo, Japan
F. MONGELLI—Institute of Geodesy and Geophysics of the University, Bari, Italy
L. J. P. MUFFLER—U.S. Geological Survey, Menlo Park, California, U.S.A.
C. PANICHI—CNR National Geological Advisory Committee, Rome, Italy
F. L. REPETTO—Division of Earth Sciences, UNESCO, Paris, France
L. RYBACH—Institute of Geophysics, ETH-Federal Institute of Technology, Zurich, Switzerland
P. SQUARCI—CNR—International Institute for Geothermal Research, Pisa, Italy
TONG WEI—Geology Dept., Geothermal Research Section, University of Beijing, Beijing, People's Republic of China
A. H. TRUESDELL—Menlo Park, California, U.S.A.
P. M. WRIGHT—President, Geothermal Resources Council, Davis, California, U.S.A.

© 1997 CNR—Istituto Internazionale per le Ricerche Geotermiche. All rights reserved

Published 6 issues/annum in February, April, June, August, October and December

Cover design by S. Barbier

Publishing and Advertising Offices

The Americas: Elsevier Science Inc., 655 Ave of the Americas, New York, NY10010, U.S.A. [Tel. +1-212-633-3730; Fax: +1-212-633-3680]

Rest of the World: Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K. [Tel. (01865) 843000; Fax (01865) 843969; Telex 83177 PERGAP G].

Editorial Addresses

The Americas: Dr S. E. Ingebritsen, U.S. Geological Survey, MS 439, 345 Middlefield Road, Menlo Park, CA 94025, U.S.A. [Tel. (415) 329-4422; Fax (415) 329-4463; e-mail seingebr@usgs.gov]

Rest of the World: Dr E. Barbier, International Institute for Geothermal Research, 2 Piazza Solferino, 56126 Pisa, Italy [Tel. (50) 41503; Fax (50) 47055; Telex 502020 IRGCNR I; e-mail barbier@iirg.pi.cnr.it *or* marnell@iirg.pi.cnr.it]

CONTENTS

NUMBER 1

M. P. HOCHSTEIN and S. SOENGKONO	1	Magnetic anomalies associated with high temperature reservoirs in the Taupo Volcanic Zone (New Zealand)
S. P. VERMA and U. RODRÍGUEZ-GONZÁLEZ	25	Temperature field distribution from cooling of a magma chamber in La Primavera caldera, Jalisco, Mexico
N. SOMA and H. NIITSUMA	43	Identification of structures within the deep geothermal reservoir of the Kakkonda field, Japan, by a reflection method using acoustic emission as a wave source
G. BATIS, N. KOULOUMBI and K. KOTSAKOU	65	Corrosion and protection of carbon steel in low enthalpy geothermal fluids. The case of Sousaki in Greece
A. AIUPPA, M. L. CARAPEZZA and F. PARELLO	83	Fluid geochemistry of the San Vicente geothermal field (El Salvador)
V. STEFÁNSSON	99	Geothermal reinjection experience
	141	Recent Geothermal Literature
	151	Calendar of Meetings

NUMBER 2

S. K. GARG and J. COMBS	153	Use of slim holes with liquid feedzones for geothermal reservoir assessment
SHENG XU, S. NAKAI, H. WAKITA, XIANBIN WANG and XUANMIN FENG	179	Effects of hydrothermal processes on the chemical and isotopic composition of mantle-derived gases in SE China
K. S. MURRAY	193	The use of soil Hg to delineate zones of upwelling in low-to-moderate temperature geothermal systems
C. CLAUSER	203	Geothermal energy use in Germany—status and potential
M. L. SOREY and E. M. COLVARD	221	Hydrologic investigations in the Mammoth Corridor, Yellowstone National Park and vicinity, U.S.A.
T. IMBACH	251	Deep groundwater circulation in the tectonically active area of Bursa, northwest Anatolia, Turkey
	279	Calendar of Meetings

NUMBER 3

T. SAWAKI, M. SASADA, M. SASAKI, K. TSUKIMURA, M. HYODO, T. OKABE, T. UCHIDA and M. YAGI	281	Synthetic fluid inclusion logging to measure temperatures and sample fluids in the Kakkonda geothermal field, Japan
T. SAWAKI, M. SASADA, M. SASAKI and K. GOKO	305	Fluid inclusion study of the Kirishima geothermal system, Japan
K. KANEV, J. IKEUCHI, S. KIMURA and A. OKAJIMA	329	Heat loss to the surrounding rock formation from a geothermal wellbore
DAI CHUANSHAN	351	Thermal analysis of indirect geothermal district heating systems
F. MONGELLI and P. PAGLIARULO	365	Influence of water recharge on heat transfer in a semi-infinite aquifer
L. BOLOGNESI	379	A tentative correlation between seismic activity and changes in the composition of thermal waters on Vulcano Island, Italy
G. GIANELLI, G. RUGGIERI and M. MUSSI	393	Isotopic and fluid inclusion study of hydrothermal and metamorphic carbonates in the Larderello geothermal field and surrounding areas, Italy
	419	Recent Geothermal Literature
	429	PatentsALERT
	435	Calendar of Meetings

NUMBER 4

A. BATTISTELLI, C. CALORE and K. PRUESS	437	The simulator TOUGH2/EWASG for modelling geothermal reservoirs with brines and non-condensible gas
P. BENEZETH, D. A. PALMER and D. J. WESOLOWSKI	465	The aqueous chemistry of aluminum. A new approach to high-temperature solubility measurements
D. L. GALLUP	483	Aluminum silicate scale formation and inhibition: scale characterization and laboratory experiments
A. MINISSALE, V. DUCHI, N. KOLIOS, M. NOCENTI and C. VERRUCCHI	501	Chemical patterns of thermal aquifers in the volcanic islands of the Aegean Arc, Greece
G. GIANELLI, F. PIOVESANA and HOANG HUU QUY	519	A reconnaissance geochemical study of thermal waters of south and central Vietnam

S. Loppi, A. Malfatti, M. Sani and N. E. Whitehead — 535 Lichens as biomonitors of geothermal radionuclide pollution

541 Recent Geothermal Literature

549 Calendar of Meetings

551 First Announcement and Call for Papers

NUMBER 5/6

Special Issue: Ahuachapán-Chipilapa Geothermal Fields, El Salvador

E. González Partida, V. Torres Rodríguez and P Birkle — 555 Plio-pleistocene volcanic history of the Ahuachapán geothermal system, El Salvador: the Concepcion de Ataco caldera

J. Urrutia Fucugauchi, V. Torres Rodríguez and E. González Partida — 577 Magnetostratigraphy of the Ahuachapán-Chipilapa geothermal field, El Salvador

D. Nieva, M. P. Verma, E. Santoyo, E. Portugal and A. Campos — 589 Geochemical exploration of the Chipilapa geothermal field, El Salvador

V. Torres Rodríguez, P. Birkle, E. González Partida, D. Nieva, M. P. Verma, E. Portugal Marín and F. Castellanos — 613 Isotopic zoning and origin of the aquifers in the discharge area of the geothermal fields of Ahuachapán and Chipilapa, El Salvador

J. M. Romo, C. Flores, R. Vega, R. Vázquez, M. A. Pérez Flores, E. Gómez Treviño, F. J. Esparza, J. E. Quijano and V. H. García — 627 A closely-spaced magnetotelluric study of the Ahuachapán-Chipilapa geothermal field, El Salvador

M. A. Pérez-Flores and E. Gomez Treviño — 657 Dipole-Dipole resistivity imaging of the Ahuachapán-Chipilapa geothermal field, El Salvador

H. Fabriol and A. Beauce — 681 Temporal and spatial distribution of local seismicity in the Chipilapa-Ahuachapán geothermal area, El Salvador

E. González Partida, A. García Gutiérrez and V. Torres Rodríguez — 701 Thermal and petrologic study of the Ch-A well from the Chipilapa-Ahuachapán geothermal area, El Salvador

715 Recent Geothermal Literature

723 PatentsALERT

729 Calendar of Meetings

731 Editors Acknowledgements